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Explaining Society: An Expanded Toolbox for Social Scientists

David C. Bell, Jodie L. Atkinson-Schnell, and Aron E. DiBacco

Indiana University–Purdue University, Indianapolis

Abstract

We propose for social scientists a theoretical toolbox containing a set of motivations that neurobiologists have recently validated. We show how these motivations can be used to create a theory of society recognizably similar to existing stable societies (sustainable, self-reproducing, and largely peaceful). Using this toolbox, we describe society in terms of three institutions: economy (a source of sustainability), government (peace), and the family (reproducibility). Conducting a thought experiment in three parts, we begin with a simple theory with only two motivations. We then create successive theories that systematically add motivations, showing that each element in the toolbox makes its own contribution to explain the workings of a stable society and that the family has a critical role in this process.

Keywords

adult; attachment; caregiving; family theory

People create society. People generate, through their independent and joint decisions, both conflict and cooperation in dyads, groups, and society. Conflict is not hard to explain as a result of the actions of self-interested persons, but cooperation has proved more difficult to explain. Over the past 350 years, many philosophers and social scientists have contemplated how society and its institutions can emerge from the actions of individuals. How, they ask, can a stable, self-sustaining society be created from the actions of actors who are separate, self-interested individuals? This Hobbesian problem of order (Hobbes, 1952) was proposed by Parsons (1937) and ratified by many others as a primary sociological question (e.g., Sawyer, 2005; Wrong, 1994). For our purposes, order in a social system means that the system is sustainable, self-reproducing, and predominantly peaceful.

We consider a few of the efforts social theorists have made to understand how individuals' motivations generate behaviors that then interact in dyads and groups to create a stable society. How individual actors' interactions create society is referred to as a process of emergence (Sawyer, 2005). By accounting for how individuals and their interactions and relationships give rise to societal institutions, emergence theories explain the structure of society as a complex system. However, many of the earlier efforts to construct this type of theory, though creative and influential, were limited by their restricted assumptions: they did not have access to modern neurobiological insights into the range of human motivations.

In this article, we embark on a similar effort to understand how stable societal institutions might arise from individual motivations. To do so, we metaphorically assemble a theoretical toolbox in which each of our tools is a human motivation. One of our goals is to evaluate such a theoretical toolbox for understanding the organization of a stable society. We begin by reviewing previous efforts to derive emergent theories of stable society. We then discuss

some of what is currently known about human motivations. Last, we conduct a thought experiment using tools from the theoretical toolbox.

We limit the focus of our experiment to the emergence of three of the key institutions that facilitate stable societies—economy (sustainability), government (peace), and family (reproducibility). We use these three institutions because they are of particular importance to social stability. First, the economy provides for the distribution of goods and services that make a society sustainable. Second, governments ensure peace through regulation, such as enforcement of contracts. Third, families enable society to be self-reproducing through the nurturance and socialization of new members. We treat economy, government, and family as functional constructs rather than as concrete historical structures.

We do not claim that these three institutions are the only, or even the most important, institutions to understand society fully. However, we suggest that the theoretical toolbox we propose is adequate to explain these fundamental aspects of society. The first theory in our thought experiment is based on a toolbox containing only the motivations of self-interest and lust. When that theory does not produce an adequate emergent theory of society, we successively add motivations to our toolbox to construct two more theories, working through each motivation's additive effect on our specified institutions and the resultant society that they generate. In the end, we note ways in which the family is of particular importance.

The Nature of Emergence

To construct a theory of stable societies, we examine the social implications of a set of human motivations. In calling what we produce a theory, we note that some authors have proposed a distinction between a theoretical orientation, which carries the logic of an explanation, and a theory, which applies that logic to a set of empirical contexts (Bell, 2008; Hage, 1972). Using that terminology, what we propose here is to develop a theoretical orientation of how a stable social system can emerge from the motivations of individual actors. Thus, we present not a theory of any particular society but a theoretical orientation that can be applied to better understand any stable society. However, because this terminology is not yet widespread in the social sciences, we use the more common, if ambiguous, terminology by referring to our product as theory.

Before we begin to develop theories of stable society, let us clearly note what we are not doing. We are not attempting to explain the historical or cultural development of society; that is, we are not attempting to explain the emergence of human society as a historical or prehistorical phenomenon. Thus, when we discuss emergence, we are not presenting a historical narrative of the development of empirical societies. We do not attempt to explain the political, demographic, cultural, or religious trajectory of any historically observed societies.

We set a modest goal: to identify what types of theories (theoretical orientations) of stable society might emerge from limited assumptions about human motivations. From these assumptions, we derive a set of successive theories, the last of which accounts for critical elements of societal functioning that are familiar to those who live in stable societies. Specifically, we ask, What is the minimal set of assumptions about the nature of human motivations that can account for the emergence of three fundamental social institutions—economy, government, and family—that aid and facilitate a stable society? We focus on stability rather than order, because for some authors (e.g., Hayek, 1982) *order* means just predictability, so that what Hobbes refers to as the “war of all against all” (discussed here) is a predictable order. For our purposes, however, stability means that a social system is sustainable, self-reproducing, and predominantly peaceful. Thus, what we are creating with the toolbox is not a theory to explain all societies at all times. In particular, we are not trying

to model societies undergoing civil war or other types of internal schism. As we suggest in our final discussion, modeling such societies would probably require greater emphasis on the motivations of anger, fear, and attachment.

Although we begin with motivations that are located solely in the individual actor, it is important to recognize that as motivations are enacted and social institutions emerge, those institutions in turn have an effect on the actors in that emergent society. Individual action and interaction creates social patterns. In turn, the social environment enables individual and interactive patterns selectively. Actors create their own social contexts, but they are not masters of those contexts (Bourdieu, 1990; Giddens, 1984). Nor is the social environment master of the individual. Social contexts put constraints on individuals; provide incentives to achieve social goals; and provide resources that individuals use actively and creatively in responding to, re-creating, and modifying their own environments and in their quest to fulfill the needs generated by their motivations. Furthermore, as we will see, the social environment can foster or limit individual motivations. This circular relation between social institutions and the individual, though not our main focus, is an important aspect to consider when attempting to understand how society as a whole emerges from the motivations of individual actors. Because we emphasize motivations, we focus primarily on a particular beginning of this circular relationship between actors and institutions and leave other aspects of the circular relationship for others to contemplate.

A fundamental principle of emergence, as we use the concept, is that there are characteristics of the system that are not characteristics of the individual components of the system. By this, we mean that there are societal characteristics that are not characteristics of individual actors themselves but that instead develop from the actors' characteristics and the actions and resultant interactions that express those characteristics. It should be noted that we do not take a position on the issues of social holism, the idea that there may be nonemergent social phenomena (Sawyer, 2005); instead, we have chosen to focus on delineating the processes by which individual phenomena—specifically biologically identifiable motivations—influence the processes and structures of economy, government, and family.

Some Theories of Emergence

Attempts to explain the emergence of a stable society from individual goals and motivations can be traced back at least as far as Plato and Aristotle. For our part, we consider the notable efforts of several social contract theorists. Hobbes (1588–1679) described self-interested actors who continually seek to fulfill their needs (Hobbes, 1952). Because total available resources are relatively limited, actors frequently want more than they have, and they compete with other actors who want the same. This eternal competition creates the “war of every man against every man” (Hobbes, 1952, p. 85). For Hobbes, this constant war will stop only when fear causes actors to unanimously choose to enter into a social contract to give up some of their individual freedoms and form a government to protect themselves from the predations of others. This government, Hobbes suggests, provides stability, as it is given absolute power that does not require additional consent after the initial social contract is formed.

John Locke (1632–1704) also assumed that actors are fundamentally self-interested (Locke, 1986). He believed, however, that as actors exert labor to fulfill their needs, their labor then creates private property and ownership. The effort that creates private property leads most others to respect that property, and thus the state of nature is relatively peaceful. Yet Locke understood that some actors would commit offenses against others in the service of their own self-interest. So the fear of such predations would lead actors to agree to a social

contract to install a government to protect life, liberty, and property (thus protecting the industrious who were able to legitimately accumulate more than others). For Locke, the social contract establishes the government's authority; although Locke has a less benign view of government than Hobbes, Locke argues that legitimacy is conditional on the government's acting as a neutral judge to protect property.

Jean-Jacques Rousseau (1712–1778) agreed with Hobbes and Locke that actors are self-interested, but he also emphasized that actors are naturally limited in their wants and are empathic toward others, so that actors in the presociety state of nature lead solitary, peaceful, and productive lives (Rousseau, 1994). As members of a potential society improve their productivity through interaction, increased productivity generates pride in comparison with others. Interdependence allows for the creation of new products, which in turn produces insatiable new desires, as well as the desire to control others. Rousseau argued that the need to resolve conflicts that emerges from the unequal distribution of property leads to the formation of the social contract and its resultant government to keep peace between men, a peace that primarily benefits the already powerful. For Rousseau (1994), “the first man who, having enclosed a piece of ground, to whom it occurred to say this is mine and found people sufficiently simple to believe him, was the true founder of civil society” (p. 60). Thus, Rousseau had a more equivocal view of the role of government in creating stability than either Hobbes or Locke.

Human Motivation

Recent developments in neurobiological research have given new insights into human motivations, insights that go beyond what was known to classical theorists. This research has identified the existence of multiple motivations produced by systems in the brain (MacLean, 1990; Panksepp, 1998). These motivations are part of what Damasio (1994) calls “pre-organized mechanisms” (p. 117) in the brain and are produced by systems that have been preserved through evolution because they provide survival advantages. Much has been learned about these motivations by examining their operation in nonhuman species. In these species we can see how the motivations operate without the interaction with cultural influences that complicate understanding their operations in humans. Four identified motivations that are found in all vertebrates (mammals and nonmammals) are seeking (which we understand as self-interest), lust, fear, and anger (Panksepp, 1998).

Self-Interest

The seeking motivation, in its most primitive form, directs the search for nutrients and the related exploration of the environment. The seeking motivation is an energy-conserving motivation. It is of no benefit to an animal if it exerts more energy in capturing a prey than can be recovered by eating the prey. Seeking is thus a reward-maximizing motivation. In humans, the seeking motivation appears to direct actors to achieve the satisfaction of their wants in general (Bell, 2010; Panksepp, 1998). For the sake of clarity, we refer to this maximizing motivation in humans as self-interest.

Self-interest has both a conventional and a technical meaning. Conventionally, it refers to anything one wants: thus, one can have an interest in food, in sex, in survival, in revenge, in security, or in one's child's success. Technically, in economics (Samuelson & Nordhaus, 1995), in sociology in social choice theory (Coleman, 1990; Hechter, 1987) and social exchange theory (Blau, 1986; Ekeh, 1974; Emerson, 1976), and in behavioral psychology (Miller & Ratner, 1998), self-interest refers to utilities that can be compared across actions and for which one makes decisions so as to maximize resulting utility. Of the conventional interests described above, only those involving tangible goods or services also involve any kind of conscious maximization of utility. We use the technical meaning of self-interest

here: thus we exclude lust (sex), fear (survival), anger (revenge), attachment (security), and caregiving (support for the child) from the self-interest motivation because these motivations involve different neural circuits from self-interest. In addition, as we will see, most of them do not involve the utility maximization of self-interest. We hold a slightly different view of self-interest from Panksepp (Panksepp & Moskal, 2008; Panksepp & Smith-Pasqualini, 2005). For Panksepp, the seeking system governs an animal's exploration of the environment, the result of which is the knowledge of where food, water, and other resources may be found. He also includes higher-order exploration, such as curiosity and science under the purview of this motivation. However, unlike Panksepp, for which knowledge of the location of food is a by-product of exploration, we propose a more sociological usage and thus suggest that the motivation of the seeking system is not just to know where food is as a means but also to procure the food and to consume it as an end. The satisfaction of self-interest produces pleasure from the production of dopamine in the brain (Panksepp, 1998).

A number of classical and contemporary authors have gone beyond self-interest as the primary motivation in human nature. Authors have frequently concluded that social reality is complex and governed not only by self-interest but also, as Brickman (1987) notes, by something else. Social contract theorists included other motivations to help account for how actors in a society might interact with one another (e.g., fear and pride for Hobbes, respect for Locke, and pity and/or empathy for Rousseau). Some authors recognize the something else at the level of the society, such as *gemeinschaft* (Toennies, 1961), mechanical solidarity (Durkheim, 1933), partnership (Eisler, 1987), commitment (Bellah, Madsen, Sullivan, Swidler, & Tipton, 1985), and community (Etzioni, 1993; Nisbet, 1990). Others see it at the level of the relationship, such as *bestowal* (Singer, 1966/1984/1984/1987), communion (Bakan, 1966; Clark & Mills, 1979; Weber, 1947), expressiveness (Parsons & Bales, 1955), connectedness or connection (Hess & Handel, 1959; Jordan, 1991; Miller, 1986), affect (Kantor & Lehr, 1975), status (Kemper, 1978), object relations (Mitchell, 1988), and solidarity (Schwartz & Merten, 1980). Still others see the something else at the level of the individual, such as altruism (Thomas, 1989), *agape* (Nygren, 1953), or care (Gilligan, 1982). We look for the something else in the biological systems in the brains of humans.

Lust

Lust evolved as a motivation aroused by copulative opportunities. In humans, the conscious feeling of lust, or sexual desire, may be defined as “a psychological state subjectively experienced by the individual, an awareness that he or she wants or wishes to attain a (presumably pleasurable) sexual goal” (Regan & Berscheid, 1999, p. 15). It is the awareness of one's desire for sexual stimuli and sexual contact, as well as the motivation to achieve such sexual gratification and establish a sexual relationship (Regan & Berscheid, 1999). Like the self-interest system, satisfaction of lust produces pleasure. Because both involve dopamine, in principle an actor makes choices among sex and other interests to maximize pleasure across the two motivations.

Fear

Although the self-interest motivation directs the search for food in the simplest organisms, the fear motivation directs the effort to avoid becoming a meal to another organism's seeking system. Unlike the maximizing self-interest motivation, the fear motivation is profligate. Because the consequences of not avoiding a predator can be terminal, the fear motivation directs escape and avoidance actions that can consume enormous amounts of energy. The human fear motivation directs the avoidance of danger from both physical and social threats (Damasio, 1994; LeDoux, 1996). Hobbes was quite clear to include fear as a major human motivation; however, contemporary authors are more likely to use softer terminology, such as *anxiety*, *concern*, *worry*, *frustration*, and *distress* to refer to the fear

motivation at different levels of activation. Although one may consider that an actor has an interest in survival, the fear motivation to avoid threats is not an energy-conserving motivation: this suggests that it is not appropriate to conceptualize it as reward maximizing.

Anger

The motivation of anger is closely related to fear, and evolutionarily it was a differentiation of the fear system (Panksepp, 1998). In its most primitive form, anger is a prey's desperate struggle to escape when captured by a predator (Panksepp, 1998). In general, it is a defensive aggression that protects against social and physical predation. When self-interest or lust goals are not met, the fear system is activated in the form of frustration, which in turn activates the anger system to add emotional force to efforts to satisfy goals. Like fear, anger is not a reward-maximizing motivation. Anger is "a powerful brain force we experience as an internal pressure to reach out and strike someone" (Panksepp, 1998, p. 188) that motivates us to compete for resources. It serves the purpose of increasing the chances of getting what we want and compete for. Thus, anger becomes a non-energy-conserving mechanism that supports the achievement of self-interest and other motivation goals. Although the anger motivation does not determine which rewards are available to a successfully dominant actor (those rewards depend on resources available in the physical, social, and cultural environment), the anger motivation provides the emotional impetus to achieve the rewards (Sewards & Sewards, 2002). Furthermore, in mammals, including humans, the aggressive action to escape has evolved further into an aggressive intention to dominate (Kemper, 1990; Lara, Pinto, Akiskal, & Akiskal, 2006).

In addition to the motivations of seeking, lust, fear, and anger, which are found in all vertebrates, there are three motivations found only in mammals: caregiving, attachment, and play (Panksepp, 1998).

Caregiving

Caregiving is a motivation within all mammals to protect, comfort, and nurture another actor (Bowlby, 1969/1982; Mikulincer & Shaver, 2007; Solomon & George, 1996). The caregiving system in the brain produces this motivation and related processes, such as empathy and responsibility (Bell, 2010; Uvnäs Moberg, 2003). As are the four vertebrate emotions of self-interest, lust, fear and anger, caregiving is a biologically rooted motivation that evolutionarily predates social structure, culture, and social norms (Bell, 2001; Clutton-Brock, 1991). In humans, of course, cultural and cognitive factors can shape the development and expression of this motivation (Bell, 2010). The strength of the motivation tends to increase with physical contact and interaction. Proximity and strength of caregiving are thus linked, so that more caregiving is likely to lead to more proximity, and more proximity is likely to lead to more caregiving (Montagu, 1986), thus promoting development of an emotional bond between adults as well as between parents and their children. Like the fear and anger motivations, the caregiving motivation is not reward maximizing. The mother nursing an infant or the father comforting a nervous, crying, teething child does not primarily maximize any identifiable self-interest rewards through these activities.

Attachment

Attachment is a motivation that is oriented toward satisfying the fundamental human need for security and support (Bowlby, 1969/1982). The system in the brain that produces attachment is closely related to the system that produces fear and is thus often activated by fear, usually conceptualized as distress (Mikulincer & Shaver, 2007). This motivation thus helps create security, which is a state involving trust and the absence of fear. Security is a particularly important issue for children because of their relative helplessness, but also because childhood resolution of attachment needs affects personality and relationships

throughout life (Ainsworth, 1989; Bowlby, 1969/1982; Main, Kaplan, & Cassidy, 1985). Attachment motivates the actor to seek support from a special protecting other to reduce distress (Mikulincer & Shaver, 2007). Caregiving and attachment have their earliest development in the family. Children whose attachment needs are not met or are met only sporadically generally become insecure and have difficulty forming and maintaining rewarding adult relationships, whereas children whose attachment needs are met tend to have fulfilling relationships with others and positive expectations about forming new adult relationships (Ainsworth, Blehar, Waters, & Wall, 1978; Bowlby, 1973, 1980). Like fear, attachment is not inherently a reward-maximizing motivation.

Play

Play is a motivation only recently identified in the brain and not yet well understood (Panksepp, 1998; Panksepp & Smith-Pasqualini, 2005). What is known is that the urge to play is intrinsic to the mammalian system. Because of its association with physical contact and intense interaction, play creates and strengthens social bonds (Brown & Vaughn, 2009; Huizinga, 1949/2000; Panksepp, 1998). It provides a vehicle for the exercise of other emotional systems, especially social ones, in safe and familiar relationships (Huizinga, 1949/2000; Panksepp, 1998). The play system generates pleasure and thus provides a rewarding vehicle for learning skills associated with all of the other motivations, such as fear (e.g., peek-a-boo, scary movies) or anger (rough-and-tumble play, other competitions). In addition, play appears to strengthen executive psychological functions and so support actors' thoughtful engagement with the people and world around them (Panksepp & Smith-Pasqualini, 2005).

The motivations of self-interest, lust, fear, anger, attachment, caregiving, and play are produced from strictly biological neuronal systems in the brain. However, simply because they are embodied in the brain does not mean that they are independent of social influences. As a neuronal system is laid down and consolidated, the strength of the corresponding motivation is influenced by social and cultural contexts that vary throughout the population. The growth and interconnections among these systems in the brain are affected by factors such as prenatal nutrition, maternal stress levels, birth experiences, physical contact, and social interaction (Carter, 1998; Hrdy, 1999, 2005; Insel, Young, & Wang, 1999; Kemper, 1990; Panksepp, 1998; Panksepp & Smith-Pasqualini, 2005). Wider social influences, such as level of education and economic resources available to caregivers, also influence the rate of development of each brain system during childhood (Bell, 2009, 2010). In fact, each motivation varies throughout the population depending on personal and interpersonal experiences that strengthen or weaken the motivation.

A Thought Experiment in Three Parts

In this article we develop a series of theories of society. Like all theorists of social systems from Hobbes, Locke, and Rousseau through Durkheim and Parsons to Coleman and Giddens, we start with certain assumptions and then deductively describe the society that would emerge from these assumptions. We use this process three times as we cumulatively add motivations to our theoretical toolbox until we arrive at our final theory. In this series we begin the conceptualization of each theory with strictly limited assumptions about human motivations and then deduce from those motivations the forms that society would or could take as actors spontaneously express the motivations. The ultimate goal is to produce a theory that generates a close approximation to a stable society. We conclude in the end that this occurs in the theory that includes the motivations that we suggest for the social scientist's theoretical toolbox. In developing each theory, we ask three sets of questions in particular:

1. What kind of economic system arises by which adults meet their needs for sustenance, shelter, and other physical needs for survival? Why, given the motivations assumed by the theory, does one actor provide goods and services wanted by another?
2. What kind of government system arises? How will actors in a society organize to minimize violence and threats of violence? How, given the motivations assumed by the theory, will protection and other resources for the common good be provided?
3. What kind of family system arises to provide the reproduction of society? Given the motivations assumed by the theory, why will adults provide the nurturance and socialization of children necessary to populate the next generation?

We construct three theories with increasing sophistication and increasing verisimilitude. The first theory is admittedly very limited, but it corresponds to what many theorists claim as minimal assumptions. The inadequacies of Theory 1 will become clear relatively quickly, but this theory creates a foundation, inadequate as it may be by itself, on which the subsequent theories are built.

Theory 1: Self-Interest and Lust

We begin with a very limited model of human motivation: we imagine that all actors have only two motivations, those of self-interest and lust, the energy-conserving, interest-maximizing motivations. We imagine independent actors in an environment of some scarcity. In this environment, each actor will seek to find adequate resources to sustain life, competing with others who want the same resources. Theory 1 explicitly excludes fear, anger, caregiving, attachment, and play, focusing primarily on self-interest and including lust only in the segment of the theory where it is applicable.

Many contemporary theories of how individuals come to act together to construct societies have largely been based on the assumption that self-interest is the primary human motivation (Bourdieu, 1984; Coleman, 1990; Giddens, 1979; Gouldner, 1960; Held, 1990; Mansbridge, 1990; Miller & Ratner, 1998; Parsons, 1951; Rawls, 1971; Rescher, 1975; Schwartz, 1986; Sober & Wilson, 1998). “Evolutionary biology, neoclassical economics, behaviorism, and psychoanalytic theory all assume that people actively and single-mindedly pursue their self-interest, whether it takes the form of reproductive fitness, utility maximization, reinforcement, or the pursuit of pleasure” (Miller & Ratner, 1998, p. 53). To this list we add rational choice theory, exchange theory, and most power theories across the social sciences.

An inherent part of the assumption of self-interest as a motivation is that actors are rational; that is, we assume that they act on the basis of their personal interests in such a way as to maximize their net rewards (Becker, 1991; Coleman, 1990; Elster, 1989; Nye, 1982). Governed by the self-interest motivation, the actor attempts to use resources, energy, and time efficiently to maximize the achievement of rewards. Because we have not included fear in this theory, actors do not—cannot—fear their neighbors, and because we have not added anger, there will inevitably be differences among actors but no dominance motivation, that is, no alpha males or alpha females. Actors cannot fear their neighbors, and they cannot feel a need to defend through strength against their neighbors. We take this to mean that there will be no hierarchy, no dominance of one over another. Thus, we imagine a kind of Rousseau-like world in which actors are characterized by their primary concern for satisfaction of their own needs and lead an innocent, peaceful and largely solitary existence.

Economy—In the environment we are considering, actors can meet their survival needs for sustenance, shelter, and the like only from their own efforts (e.g., growing their own food, weaving their own cloth) or by entering into mutually acceptable trades with other actors.

For actors motivated solely by self-interest, transactions to achieve sustenance will involve voluntary exchange between equals. Actors will not voluntarily enter into a transaction unless the maximization of those interests in the moment is achieved. If two actors are equal and there is no regulatory mechanism, they can transact only through voluntary, mutually rewarding exchanges in the moment. Voluntary exchange is for most people the preferred way for society to be conducted. Actors can live in mutually rewarding peace with their neighbors in an economy limited to direct exchange.

Government—There is no government in this theory because our preliminary restriction to the motivation of self-interest eliminates the possibility that fear might motivate a search for protection. Actors might desire a market and a government that can enforce contracts. However, without fear and enforceable power, any actor can refuse to honor any contract at any time with impunity. If actors were to try to create a government, any government official would be, by assumption, strictly self-interested. This official would have no motivation to resolve disputes fairly. In Theory 2 we will see a stronger motivation to create a government.

Family—Actors want what they want, and one of the things they want is sex, because, as discussed previously, lust is also a biological motivation that we have in this theory. Therefore, some actors will eventually produce children. The motivation of lust per se is not goal directed toward the birth of children most of the species in which lust is a motivation have no known awareness of such a link. For most sociological theories, lust is a background, unexamined assumption from which children just appear; lust has no formal role in most theories of society, and it will not have much of a role here other than that of propagation.

When children appear, they will likely die unless they are fed, clothed, housed, protected, and socialized with the skills to navigate the world. We refer to actions to meet these needs as nurturing the child. In a system of actors motivated only by self-interest and lust, nurturing is difficult to motivate in adult actors. In the society of Theory 1, families must develop from actors' efforts to satisfy their self-interest and lust motivations. Thus, the nurturance of children will by assumption be enacted—to the extent that it occurs—by self-interested actors who require an immediate reward to compensate for those nurturing activities. In such a society, there is no immediate inherent benefit for an actor to nurture a child. An ideal exchange between an adult and a child might be for the adult to provide child nurturance at one time in return for labor in a family enterprise or old-age assistance from the child at a later time. In this arrangement, the self-interested adult would be providing nurturance in anticipation of the child's eventual ability and willingness to repay the adult through labor or providing old-age assistance. However, when the child became able to do so, it would not necessarily, or automatically, be in the interests of the child to provide the services to the adult. Because the adult would know this in advance, few adults would recognize a self-interested benefit in nurturing the child.

It appears, then, that a family system cannot emerge in a society in which actors are motivated only by self-interest and lust. Lust can produce children, but neither lust nor self-interest facilitates the nurturance of those children to assure their survival and socialization, which are prerequisites for a self-reproducing society. There is no credible source of reward that can harness self-interest to motivate adult nurturance. Thus, Theory 1 does not allow for exchanges or contracts that create families that are recognizable as they are understood in a stable society.

Table 1 summarizes the nature of economy, government, and family that our analysis shows will (or will not) emerge in Theory 1. It is clear, as we explain above, that human actors who

are motivated only by self-interest and lust will be unable to constitute a society that is sustainable and self-reproducing.

Theory 2: Theory 1 Plus Fear and Anger

In Theory 2, we add two new motivations, fear and anger, to Theory 1's self-interest and lust. Hobbes refers to fear more than 150 times in *Leviathan* (1952), in which he proposes his social contract explanation of the motivation to create government. As each actor must contend with the self-interested actions of others, so each becomes afraid of the predations of others. This state of constant competition creates the so-called war of all against all.

Economy—In Hobbes's state of nature, each actor must balance the self-interested desire for more with the fear of failure and the fear of losing what one has (see also Wrong, 1994). As actors vary in the strength of their motivations, there will be some actors whose fear system is very sensitive and who feel particularly threatened by the success of others. The fearful actor can reduce fear through power and through accumulating additional resources. Being afraid of what other actors might do activates the anger motivation to reduce one's vulnerability. Actions to augment one's power (e.g., greater physical strength, better weapons, skill in using them), whether done reactively for protection or proactively because of a high level of acquisitiveness, create consequential inequalities. When actors are unequal in a consequential way and there is no regulatory structure, the stronger will have the capability and incentive to coerce the weaker and receive unequal benefits. Thus, one actor may propose a transaction such as, "I will give you nothing if you give me your money; I'll beat you up if you don't." The other actor may find this to be a relatively attractive offer compared to the alternative: "I can give him my money, or I can wait for him to beat me up—and then he'll take my money anyway."

In Theory 1, self-interest and lust were able to create only a local economy of direct person-to-person exchange. With the addition of anger and inequality, the level of exploitation rises. Fear provides a reason to desire a stable economy with protections against coercion and exploitation, and anger provides an emotional impetus to achieve such a goal. However, just wanting to receive the benefits of a stable economy is not enough to obtain them. There is no motivation in this theory that will lead the stronger to use restraint—getting more is always better than getting less. The economy of Theory 2 will still enable direct exchanges, but inequality will enable power interactions in which stronger actors will take resources from weaker actors.

Government—As some actors become stronger and more powerful than others and expropriate resources from them, the fear system in the weaker actor is activated. For Hobbes, it is fear that motivates the eventual willingness to subject oneself to a government: Hobbes "regarded *all* men as driven to seek power, and eventually to agree to subordinate themselves to a common power, neither for glory nor to increase their opportunities for economic exploitation but rather for security against the depredations of others" (Wrong, 1994, p. 24, emphasis in original). Thus, there arises a demand for a form of regulation to limit predation. Hobbes's solution to the war of all against all is for the actors in a society to unanimously agree to give up some of their freedoms and create a government to provide protection. If such a regulatory system succeeds in restricting predation and exploitation, the result is again an exchange system of voluntary transactions, but one that also supports contracts and indirect exchanges. That is, inequalities and resulting potential for coercion become the monopoly of the regulatory system. Locke (1986) and Rawls (1971) provide similar justifications for instituting a social contract.

Thus, self-interested actors aware of their potential vulnerability to exploitation by more powerful others might desire a binding agreement to forgo some personal autonomy in return for protection by a government. For this solution to work, at least two conditions must be satisfied: protection of the social contract itself and protection of actors subject to the social contract.

First, the social contract must be protected. Once the government is constituted per the social contract, it must enforce the contract against those who oppose it, including new members (e.g., children) who were never parties to the original contract. Some actors, after the original unanimous agreement to establish the social contract, may change their minds and oppose decisions by the government that do not provide rewards for them. By the assumptions of Theory 2, actors who were self-interested before agreeing to a social contract will still be self-interested afterward. Some will not be afraid enough of others to wish to be constrained by government. In such a case of actors who come to oppose the social contract, the government may have to use coercion to overcome their opposition.

The second condition that must be satisfied is that members of the society must be protected. The government must fulfill the social contract and impartially provide protection for all actors against exploitation by others. At any point at which the government begins to abet exploitation by any actor or group of actors, or even by the government itself, the social contract will be broken (Locke, 1986).

Unfortunately for the intentions of the social contract, if the actors should agree to set up a government, then self-interested actors will staff it. Because the actors who come to hold positions in the government are by definition in this theory self-interested (as well as motivated by lust, fear, and anger), these officials will enforce the social contract to the extent that to do so is in their self-interest and fulfills their other motivations of lust, fear, and anger. Officials will have a self-interested motivation to coerce others for their own benefit. Furthermore, because they are the ones who control the means of coercion, they need not fear retaliation by others or constraint by the government they themselves control. Graft, corruption, and exploitation of those outside the government are inevitable under a system operated by such officials.

This theory provides no intrinsic motivation for government officials to enforce the social contract, so there will have to be effective oversight of their performance to ensure that officials enforce the social contract. There is, however, no mechanism under the social contract for some additional layer of superofficial to oversee the official. Even if such a layer were created, there would be no oversight to ensure that the superofficials faithfully exercised this role without another layer of oversight over them, *ad infinitum*.

Thus, the sort of government that emerges in a society of actors who are motivated only by self-interest, lust, fear, and anger is a system of untrammelled power. A government in such a society will be absolute and authoritarian. Self-interested officials will be motivated to exploit others for personal benefit; fear may make them sensitive to opposition from those they exploit, but their anger will activate protective and defensive action against any opposition. This government will be inherently incapable of impartial enforcement of the social contract because there is no mechanism to prevent exploitation by the government or by those who can reward officials for nonenforcement of the social contract.

Family—In Theory 2, children's and adult actors' needs are expanded to include those generated by the fear and anger motivations. In the family, children still need nurturance, but the addition of fear and anger provide no new rewards to pay adults for these services. The creation of an authoritative government structure allows for the possibility of enforcement of

contracts, so delayed exchanges become possible. The emergence of a coercive, yet unbiased, regulatory system to enforce contracts would allow for an exchange over time between an adult actor and child. Anyone could in principle enter into a contract with an adult to provide a stream of rewards as compensation for the efforts of nurturing a child. If the adult enters into such a contract, threats of punishment by a regulator could serve to enforce the contract. And yet there is no reward to the first actor for entering into this contract even under a regulatory system that enforces voluntary contracts.

The government, in its regulatory function, might choose to enforce involuntary contracts (which is essentially what social norms are). For example, an adult actor might enter into a contract with the child, who is not capable of giving informed agreement. The adult can contract to give nurturance to the child in exchange for support to be given by the child to the adult in old age (perhaps invoking the social norm of reciprocity). The self-interested adult will, of course, maximize his or her own reward by giving the minimum level of nurturance to the child to avoid punishment by the authority charged with enforcement of the contract. Similarly, the child in adulthood will give the minimum level of nurturance to the elder adult to avoid punishment by the authority charged with enforcement. If the adult wants more than minimal nurturance in old age, the adult might create an equal value contract, in which the adult will record the level of nurturance to the child with the regulating authority, and that authority can then enforce an equal level of nurturance from the child in the adult's old age.

An alternative method for ensuring adult nurturance of children is for the government to directly mandate such nurturance. A government, staffed with self-interested officials, might recognize the benefit to itself of socializing future generations and might then decide to enforce nurturance of children by adult actors. To Locke (1986), it is part of the social contract that parents are obligated in this way. Of course, even if society were to charge the government to enforce adult nurturance of children, there is no plausible mechanism by which some enforcement official can be both motivated to enforce nurturance and knowledgeable enough to make the enforcement effective.

Anger can create child abuse along with other forms of interpersonal violence. Actors who are motivated only by self-interest, lust, fear, and anger will have no intrinsic motivation to nurture children. But to the extent that the government coerces such behavior from parents, nurturance can create enormous frustration for parents from the burdens of attention, expense, and effort required to meet even the most basic survival needs of children. Frustration induces anger, and the greater size and strength of parents creates the opportunity for parents to vent their anger in aggression against children (Justice & Justice, 1990; Straus & Gelles, 1986). Such aggression threatens the well-being and even survival of children.

To satisfy the increased demand for a nurturing parental role, government would need to establish surveillance over the family. Thus, a society peopled by actors motivated only by self-interest, lust, fear, and anger must either reduce privacy of the family to allow government surveillance or give up on enforcing parental nurturance. A potential solution for increasing surveillance is for the government to create a role in the family to monitor adult care of children, but the enforcement issue remains. Thus, adult-child nurturance will be sporadic and unenthusiastic, because high levels of nurturance cannot be reliably compensated or enforced.

We have seen that, in a social system in which all motivations are focused on the self, there are no mechanisms besides reward or punishment to achieve the nurturance of children. Children are needed to replenish the workforce, to provide economic services to the family

business, to provide care services in the adult actors' old age. These outcomes are likely to occur only to the extent that there is a coercive social structure that ensures the children's needs are met; that the children obey an involuntary contract to provide these services; and that the children, as adults, repeat the cycle with children of their own.

Table 1 summarizes the nature of economy, government, and family that our analysis shows emerges in Theory 2. Because of fear and anger, government might be instituted, but it would necessarily be corrupt. It appears that a family system could not emerge spontaneously in a society under the motivational assumptions of this theory unless the government coerces it. However, such coercion is likely to be ineffective. We saw in Theory 1 that there was no credible source of reward that can harness self-interest or lust alone to motivate adult nurturance of children. And we have seen in Theory 2 no credible threat that can harness the additional motivations of fear or anger to foster such nurturance either. Clearly, children will result in any hypothetical society—if for no other reason than lust. However, given the assumptions of Theories 1 and 2, actors have no rational reason (no expected net reward and no credible threatened punishment) for nurturing them.

Theory 3: Theory 2 Plus Caregiving, Attachment, and Play

In this theory, we add three final motivations to our theoretical toolbox, caregiving, attachment, and play. The social contexts that determine the development of the caregiving and attachment systems generally happen primarily and earliest in the family. The play system as well is strongly associated with the family. Because of the particular importance of the family to these motivations, our discussion of Theory 3 examines the emergence of the family before examining that of the government and economy as in our previous two theories, because in this theory, the family provides the necessary foundation from which cooperative economic and regulatory processes can emerge.

Family—The caregiving motivation is inherently oriented toward a specific partner, this motivation directs action to meet that specific partner's needs. Actors who hold a partner and interact with him or her (whether the partner is another adult or a child) activate the caregiving circuits (Panksepp, 1998) that allow him or her to come to be proactively committed emotionally to the partner and to meeting the partner's needs (Bell, 2001, 2010; Bell & Richard, 2000; Hrdy, 1999; Montagu, 1986). This process operates spontaneously and deeply between most children and the adults who nurture them. In addition, adults build mutual caregiving relationships in a more deliberate way with other adults, which in turn provide a foundation for marriage and other long-term relationships.

When we add the caregiving motivation to our theoretical toolbox, we have, for the first time, a motivation for the voluntary nurturance of others, finally making it motivationally feasible for children to receive the nurturance they need to grow to adulthood, and so enabling the literal reproduction of society. We can directly conceptualize dyadic relationships in which two actors nurture and support each other without any necessary assumption of reward or coercion. The caregiving motivation provides a foundation for the family as a nurturing and socializing institution by allowing for internal motivation of supportive relationships. The ability of the caregiving motivation to foster secure attachment is a critical contribution to social stability through the family structure. Because healthy adults are proactively committed to their children, they have a motivation to be sensitive and responsive to their children's needs. For an adult with a fully functioning caregiving system, it is the adult's perception of the child's needs that determines the adult's responses to the child (Blood, 1969; Erikson, 1963; LaRossa & LaRossa, 1981; Rapoport, Rapoport, Strelitz, & Kew, 1977; Ruddick, 1989). Adults are still self-interested, and potentially fearful, and angry in this model of human motivation, but they are now also interested in meeting the

needs of others. Adults may be frustrated and angry from the costs and inconveniences of child nurturance, but now they have a countervailing motivation—caregiving. Thus in the families that emerge in theories produced by this model of human motivation, family members still negotiate, exchange with, and coerce one another; but they also ask and receive; they listen and give. In these families, sensitive and responsive caregiving meets the attachment needs of children and partners, creates more attachment security, and lays the groundwork for cooperative activity across society.

Furthermore, because of the adult's personal and emotional commitment to the child, monitoring of nurturance is now done by the adult instead of by the government or some other regulatory arm of the society. The result is that the monitoring is more effective, and sensitivity and responsiveness are higher than can be expected from external monitoring by either through a formal means such as the government or informally through social norms enforcement. The security that human actors now actively pursue because of the attachment motivation is able to be produced by consistently responsive and sensitive nurturance. This results in secure attachment that supports open, flexible relationships—first in the family and later in the society in general.

In families with such security, play can flourish when family members are comfortable and warm toward one another (Panksepp, 1998). Caregiving thus engenders the trust that makes play possible (Bekoff, 2004). Play supports health through physical exercise and fitness, enhances cognitive abilities and physical dexterity, and can encourage social flexibility and innovation (Huizinga, 1949/2000). In a self reinforcing cycle, play then also reinforces the feeling of security. To the extent that family experiences generalize to actors outside the family, caregiving and playfulness have the potential to affect how actors can live together cooperatively in larger groups.

Economy—As the motivation to voluntarily provide nurturance to others, caregiving can have a profound effect on the society, including the economy. People who grow up in supportive and loving families in which the motivation to nurture family members is modeled and encouraged tend to exhibit high levels of caregiving toward strangers as well (Mikulincer & Shaver, 2007; Oliner & Oliner, 1988). Actors who receive sensitive and responsive nurturance in their families do not have to worry about their own unmet attachment needs and can thus spare attention for the needs of others. Generalization of the dyadic caregiving experienced in the family to those outside of the family unit allows actors to recognize needs in others, and then meet those needs. This creates at least two outcomes. First of all, there are still exchange and power. Actors still enter into voluntary exchanges with persons who are functionally equivalent, and may still coerce extra rewards from others who are weaker. But to the extent that actors are motivated by caregiving, they also become empathic toward the needs of others (Bell, 2010). In a dyadic relationship, this works to balance the self-interest motivation's intent to maximize reward at any cost with the caregiving motivation's concern about the welfare of the other actor. The actor's empathy thus acts as a restraint on the actor's self-interest.

A second outcome results from the recognition that actors differ in their levels of self-interest, fear, and caregiving. Those with high caregiving motivations are led to meet the needs of not just those with whom they have a personal relationship but also others whom they do not know. In addition to individual philanthropy, organizations designed to meet the needs of others, such as homeless shelters and orphanages, express the caregiving motivation that has been generalized from specific close relationships to those outside the family.

Government—As secure actors can be individually concerned about the needs of others, this generalized concern for a variety of different actors can then become a facilitator of governmental action. Now that governmental officials can be motivated by caregiving in addition to the more base motivations of self-interest, lust, fear, and anger, government can effectively offer impartial enforcement of exchange contracts and impartial detection and punishment of coercion, thus permitting effective long-term contractual agreements. The addition of attachment does not change the purpose or structure of government from Theories 1 and 2, but it does enlarge the potential scope of regulation because the actors have an enlarged set of benefits they wish to obtain (self-interest rewards, reduction of fear, and security through attachment).

When government officials are motivated by caregiving as well as other motivations, then government action can be directed effectively toward the needs of society instead of exclusively toward the self-interest, lust, fear, and anger of the official, and an ethic of care can emerge (Gilligan, Ward, & Taylor, 1988; Rich, 1986; Ruddick, 1989). Although it remains true that some in government may be motivated predominantly by self-interest and may thus seek to exploit rather than protect citizens, officials in the government who are motivated more strongly by caregiving will monitor the effectiveness of their own actions and that of other officials, thus reducing (though certainly not eliminating) the exploitive efforts of those officials driven mainly by self-interest. When the idea of governmental caregiving becomes established in the population, oversight of the government by the populace as well as by representatives of the populace becomes legitimated. Officials who profit individually rather than discharging the public trust can be disapproved and punished more effectively if citizens are actively engaged in the government's oversight. In addition, it is legitimate to expect that securely attached citizens who are trustful of others will be inclined to accept governmental support and authority when governmental actions are carried out for the general welfare.

Another effect of caregiving is that anger is reduced. This reduction occurs at the individual level as the caregiving system competes with and inhibits self-interest. Anger is also reduced socially as government regulation reduces anger directly by threatening punishment of unrestrained predation and indirectly by reducing frustration from predation.

When actors vary in their caregiving levels and abilities, some will have strong motivation, knowledge, and ability to nurture sensitively and responsively, whereas others will have lesser knowledge and ability. As the members of society note such variations in caregiving, some forms of this motivation will become more valued than others. The result of this variation is likely to be the development of a social norm (or some sort of moral code) regarding what is considered an appropriate level of caregiving. Hence, it is likely that the government's role will expand in Theory 3 beyond regulating self-interest and anger to regulating caregiving itself to encourage highly regarded forms or demonstrations of this motivation. Government regulation of caregiving can be in various forms, but at minimum it will evolve into some sort of system that punishes those actors whose caregiving is deemed to be "not good enough," provides them with resources that can be used to better this motivation in those actors, or simply offers an ample-enough reward to encourage or train those with lower levels of the caregiving motivation.

With the specification of Theory 3, the basic theoretical toolbox is complete. Theory 3 recognizes that actors are motivated by self-interest to maximize their rewards; by fear and anger to resist predation as others try to maximize their own rewards; by attachment to achieve safety, support, and comfort from others; and by caregiving to encourage and support the needs of others. Anger and attachment are of secondary importance in Theory 3. Anger is reduced because of regulation; attachment is reduced because of its dependence on

caregiving. The toolbox also includes lust and play, although we have found them to be less central to the problem of social stability than they might be for other problems. Self-interest and fear, and to a lesser extent, anger, identify needs whose centrifugal forces create conflict, disappointment, and pain in human relationships. Caregiving, and to a lesser extent, attachment and play, provides an understanding of centripetal forces that bind actors into cooperative and supportive social structures, of which the family is particularly important. Table 1 summarizes the nature of economy, government, and family that our analysis shows emerges in Theory 3.

Discussion

The question of how a stable society can arise from a population of self-interested individuals has been of great interest to philosophers and social scientists over a long period of time. Most of the attempted answers have relied on government (Hobbes, 1952; Locke, 1986; Rousseau, 1968) or on a more diffuse sort of social control (Coleman, 1990; Elster, 1989; Hechter, 1987; Parsons, 1951) to create conditions for cooperation in society. Instead of trying to explain behaviors that are not easily identifiable as self-interested as “really” self-interested, we advocate that theorists should acknowledge that people sometimes are not self-interested. We believe the social scientist’s theoretical toolbox should include the seven motivations of self-interest, lust, fear, anger, caregiving, attachment, and play. The final theory we have provided here (Theory 3) is based on these seven fundamental human motivations, each of which has a clear biological reality. The final theoretical toolbox that we propose is not a complete set of tools for all social explanation, but it provides a solid beginning for such an explanation and allows for the addition of other emotional motivations, such as shame (Scheff, 1990), embarrassment (Goffman, 1959), and many others. For some social investigations, a theorist might want to add these or other biologically based motivations to his or her own toolbox—or even other speculative motivations whose biological basis has not yet been determined. As each carpenter typically has a set of common and basic tools, and adds more specialized tools over time to suit his or her specific needs, we are suggesting the same thing for social scientists. We start with what we believe to be seven basic tools.

As we suggest in our analysis, the family is not just another societal institution. It can in fact be considered the place where we find the beginning of an answer to the question of social stability and cooperation, because it is in the family that caregiving has its strongest expression. As a proactive motivation to meet the needs of specific partners, the caregiving motivation releases the theorist from having to explain the sacrifice of parenting as a convoluted outcome of self-interest. Instead, including the motivation of caregiving in the theoretical toolbox provides the theorist with a tool to explain voluntary and proactive nurturance and cooperation in the family and elsewhere. By allowing for full development of cooperation in society, it provides a basis for a positive explanation of how a stable society can exist, a society that is sustainable, peaceful, and self-reproducing.

As Brickman (1987) points out, an “economic” view of human nature as maximizing self-interest is part of “what every educated person should know” (p. 16). What we argue here is that such a view of human nature is partially true but incomplete. Just as self-interest is routinely considered universal for humans—as a central element of human nature—so do fear, caregiving, attachment, anger, and other motivations need to be considered universal components of human nature, and those components need to be taken into account in social theory.

The theoretical toolbox that we propose contains, as we have seen, a minimum of seven motivations as theoretical tools. For the purpose of understanding how a stable society

emerges from these motivations, we have concluded that self-interest, caregiving, and fear can be considered the most central. Self-interest motivates the solitary search for reward, “even against the resistance of others” (Weber, 1946, p. 180). Caregiving is the central motivation for providing care and support to others. Because caregiving does not always provide as much nurturance as an actor might desire, distress as a reduced form of fear is the motivation for protesting against frustrated desires and against physical and social threats. Somewhat less central for the coherence of a stable social system, attachment is the motivation that allows one to rely on the caregiving of trusted others and accept their care and support when individual self-interested efforts are insufficient. Although less central in a social system with substantial caregiving compared to Hobbes’s war of all against all, anger motivates a proactive response to fear and provides the emotional force behind efforts to find new arrangements that can eliminate threats. From this analysis, it is only as we include caregiving that we see the glue that holds society together peacefully.

There are some directions in which the proposed toolbox might enrich theory. One potential area in the family is the issue of power and family violence. In the 1960s and 1970s, there were extensive power analyses of family interaction in terms of contending self-interests (Burr, Hill, Nye, & Reiss, 1979; Gelles, 1980; Goode, 1971; Kumagai & O’Donoghue, 1978; McDonald, 1980; Olson & Cromwell, 1975; Sprey, 1975). The weakness of these analyses from the point of view of the theoretical toolbox is their exclusive focus on self-interest as the motivation for power. Most power analyses have focused on contending for superiority and have viewed nurturance as an instance of weakness and lack of control. However, using caregiving as a motivation could lead to a healthy focus on nurturing. Nurturing can be viewed as an activity of strength, maturity, and competence, whereas being nurtured involves need and dependency. Studies of marital and other family violence might be strengthened by recognizing that violence and some other forms of power, like the temper tantrums of childhood, are also a response of the needy and dependent against the strong and competent.

A contribution of the toolbox to attachment research is to emphasize that fear and attachment are different motivations. Almost all contemporary formulations of attachment theory conceptualize attachment only in its combination with fear (for further discussion, see Bell, 2009, 2010). Just as social scientists have studied the interaction of fear and anger as separate motivations in the frustration-aggression literature, efforts to conceptualize attachment independently of fear may prove beneficial in family studies. Previous analyses of adult attachment have often combined lust, attachment, and caregiving into a single concept of adult attachment (Ainsworth, 1982; Hazan & Zeifman, 1994, 1999; Shaver, Hazan, & Bradshaw, 1988). Combining the three motivations under a single concept emphasizes how they are often correlated, but at the same time this approach obscures the many potential conflicts among the motivations both within and between dyad partners. Using the theoretical methodology of the toolbox may allow this research to be strengthened by a careful separation of the autonomous motivations of fear, lust, attachment, and caregiving.

Social action based on altruism, such as philanthropy, may be better understood when each motivation is accounted for individually as well. Understanding why one individual behaves in a self-sacrificing manner to aid another individual or to help a group is likely to become clearer if caregiving and self-interest are understood as separate constructs and each of the motivations is accounted for individually.

To expect all theorists to fully navigate the neurobiological intricacies of human motivations is an unrealistic expectation. However, it is clear that social scientists who exclude

caregiving from the theoretical toolbox will be limited in explaining the cooperative, altruistic, and intimate aspects of social life.

Our goal in this project has been to address a question older than social science: how can self-interested persons come together to create a stable, self-reproducing, and peaceful society? Our basic answer is that, as long as self-interest is the only motivation, people cannot create such a society. And as long as social scientists continue to use self-interest exclusively in their theories, we cannot understand how such societies come to be. Only when we social scientists recognize that humans also have a genuine motivation to nurture one another, a motivation that is strongest in the family but that generalizes to other parts of the social system, can we understand clearly how a cooperative and peaceful society can exist.

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References

- Ainsworth, MDS. Attachment: Retrospect and prospect. In: Parkes, CM.; Stevenson-Hinde, J., editors. The place of attachment in human behavior. New York: Basic Books; 1982. p. 3-30.
- Ainsworth MDS. Attachments beyond infancy. *American Psychologist*. 1989; 44:709–716. [PubMed: 2729745]
- Ainsworth, MDS.; Blehar, MC.; Waters, E.; Wall, S. Patterns of attachment: A psychological study of the strange situation. Hillsdale, NJ: Erlbaum; 1978.
- Bakan, D. The duality of human existence. Chicago: Rand McNally; 1966.
- Becker, GS. A treatise on the family. Cambridge, MA: Harvard University Press; 1991. Enlarged
- Bekoff M. Wild justice and fair play: Cooperation, forgiveness, and morality in animals. *Biology and Philosophy*. 2004; 19:489–520.
- Bell DC. Evolution of parental caregiving. *Personality and social psychology review*. 2001; 5(3):216–229.
- Bell, DC. Constructing social theory. New York: Rowman and Littlefield; 2008.
- Bell DC. Attachment without fear. *Journal of Family Theory and Review*. 2009; 1:177–197. [PubMed: 22879835]
- Bell, DC. The dynamics of connection: How evolution and biology create caregiving and attachment. New York: Lexington Books; 2010.
- Bell DC, Richard AJ. Caregiving: The forgotten element in attachment. *Psychological Inquiry*. 2000; 11(2):69–83.
- Bellah, RN.; Madsen, R.; Sullivan, WM.; Swidler, A.; Tipton, SM. Habits of the heart: Individualism and commitment in American life. New York: Harper and Row; 1985.
- Blau, PM. Exchange and power in social life. New Brunswick, NJ: Transaction; 1986. Expanded
- Blood, RO, Jr. Marriage. 2. New York: Free Press; 1969.
- Bourdieu, P. Distinction: A social critique of the judgement of taste. Nice, R., translator. Cambridge, MA: Harvard University Press; 1984.
- Bourdieu, P. The logic of practice. Cambridge: Polity; 1990.
- Bowlby, J. Attachment and loss, Vol. 1: Attachment. 2. New York: Basic Books; 1969/1982.
- Bowlby, J. Attachment and loss, Volume 2: Separation. New York: Basic Books; 1973.
- Bowlby, J. Attachment and loss, Volume 3: Loss. New York: Basic Books; 1980.
- Brickman, P. Commitment, conflict and caring. Englewood Cliffs, NJ: Prentice-Hall; 1987.
- Brown, S.; Vaughn, C. Play: How it shapes the brain, opens the imagination, and invigorates the soul. London: Penguin; 2009.

- Burr, WR.; Hill, R.; Nye, FI.; Reiss, IL., editors. Contemporary theories about the family, Vol. 1: Research-based theories. New York: Free Press; 1979.
- Carter CS. Neuroendocrine perspectives on social attachment and love. *Psychoneuroendocrinology*. 1998; 23:779–818. [PubMed: 9924738]
- Clark MS, Mills J. Interpersonal attraction in exchange and communal relationships. *Journal of Personality and Social Psychology*. 1979; 37:12–24.
- Clutton-Brock, TH. The evolution of parental care. Princeton, NJ: Princeton University Press; 1991.
- Coleman, JS. Foundations of social theory. Cambridge, MA: Harvard University Press; 1990.
- Damasio, AR. Descartes' error: Emotion, reason, and the human brain. New York: Avon; 1994.
- Durkheim, E. The division of labor in society. Simpson, G., translator. New York: Free Press; 1933.
- Eisler, R. The chalice and the blade: Our history, our future. San Francisco: Harper and Row; 1987.
- Ekeh, PP. Social exchange theory: The two traditions. Cambridge, MA: Harvard University Press; 1974.
- Elster, J. The cement of society: A study of social order. Cambridge, MA: Cambridge University Press; 1989.
- Emerson RM. Social exchange theory. *Annual Review of Sociology*. 1976; 2:335–362.
- Erikson, EH. Childhood and society. New York: Norton; 1963.
- Etzioni, A. The spirit of community: The reinvention of American society. New York: Touchstone; 1993.
- Gelles RJ. Violence in the family: A review of research in the seventies. *Journal of Marriage and the Family*. 1980; 42:873–885.
- Giddens, A. Central problems in social theory: Action, structure and contradiction in social analysis. Berkeley: University of California Press; 1979.
- Giddens, A. The constitution of society: Outline of the theory of structuration. Berkeley: University of California Press; 1984.
- Gilligan, C. In a different voice: Psychological theory and women's development. Cambridge, MA: Harvard University Press; 1982.
- Gilligan, C.; Ward, JV.; Taylor, JM. Mapping the moral domain: A contribution of women's thinking to psychological theory and education. Cambridge, MA: Harvard University Press; 1988.
- Goffman, E. The presentation of self in everyday life. Garden City, NY: Doubleday; 1959.
- Goode WJ. Force and violence in the family. *Journal of Marriage and the Family*. 1971; 33:445–458.
- Gouldner AW. The norm of reciprocity: A preliminary statement. *American Sociological Review*. 1960; 25:161–178.
- Hage, J. Techniques and problems of theory construction in sociology. New York: Wiley; 1972.
- Hayek, FA. Law, legislation, and liberty. Vol. 1. London: Routledge; 1982.
- Hazan, C.; Zeifman, D. Sex and the psychological tether. In: Bartholomew, K.; Perlman, D., editors. *Advances in personal relationships*. Vol. 5. New York: Kingsley; 1994. p. 151-178.
- Hazan, C.; Zeifman, D. Pair bonds as attachments: Evaluating the evidence. In: Cassidy, J.; Shaver, PR., editors. *Handbook of attachment: Theory, research, and clinical applications*. New York: Guilford; 1999. p. 336-354.
- Hechter, M. Principles of group solidarity. Berkeley: University of California Press; 1987.
- Held, V. Mothering versus contract. In: Mansbridge, JJ., editor. *Beyond self-interest*. Chicago: University of Chicago Press; 1990. p. 287-304.
- Hess, RD.; Handel, G. Family worlds: A psychosocial approach to family life. Chicago: University of Chicago Press; 1959.
- Hobbes, T. *Leviathan*. Chicago: Great Books; 1952.
- Hrdy, SB. Mother Nature: A history of mothers, infants, and natural selection. New York: Pantheon; 1999.
- Hrdy, SB. Evolutionary context of human development: The cooperative breeding model. In: Carter, CS.; Ahnert, L.; Grossmann, KE.; Hrdy, SB.; Lamb, ME.; Porges, SW., et al., editors. *Attachment and bonding: A new synthesis*. Cambridge, MA: MIT Press; 2005. p. 9-32.
- Huizinga, J. *Homo ludens: A study of the play element in culture*. London: Routledge; 1949/2000.

- Insel, TR.; Young, L.; Wang, Z. Molecular aspects of monogamy. In: Carter, CS.; Lederhendler, I.; Kirkpatrick, B., editors. *The integrative neurobiology of affiliation*. London: MIT Press; 1999. p. 183-197.
- Jordan, JV. The meaning of mutuality. In: Jordan, JV.; Kaplan, AG.; Miller, JB.; Stiver, IP.; Surrey, JL., editors. *Women's growth in connection: Writings from the Stone Center*. New York: Guilford Press; 1991. p. 81-96.
- Justice, B.; Justice, R. *The abusing family*. New York: Plenum; 1990. Rev. ed
- Kantor, D.; Lehr, W. *Inside the family: Toward a theory of family process*. New York: Harper and Row; 1975.
- Kemper, TD. *A social interactional theory of emotions*. New York: Wiley; 1978.
- Kemper, TD. *Social structure and testosterone: Explorations of the socio-bio-social chain*. New Brunswick, NJ: Rutgers University Press; 1990.
- Kumagai F, O'Donoghue G. Conjugal power and conjugal violence in Japan and the USA. *Journal of Comparative Family Studies*. 1978; 9:211–221.
- Lara DR, Pinto O, Akiskal K, Akiskal HS. Toward an integrative model of the spectrum of mood, behavioral and personality disorders based on fear and anger traits: I. Clinical applications. *Journal of Affective Disorders*. 2006; 94:67–87. [PubMed: 16730070]
- LaRossa, R.; LaRossa, MM. *Transition to parenthood: How infants change families*. Beverly Hills, CA: Sage; 1981.
- LeDoux, J. *The emotional brain: The mysterious underpinnings of emotional life*. New York: Touchstone; 1996.
- Locke, J. *The second treatise on civil government*. New York: Prometheus Books; 1986.
- MacLean, PD. *The triune brain in evolution: Role in paleocerebral functions*. New York: Plenum; 1990.
- Main M, Kaplan N, Cassidy J. Security in infancy, childhood, and adulthood: A move to the level of representation. *Monographs for the Society for Research in Child Development*. 1985; 50:66–106.
- Mansbridge, JJ. The rise and fall of self-interest in the explanation of political life. In: Mansbridge, JJ., editor. *Beyond self-interest*. Chicago: University of Chicago Press; 1990. p. 3-22.
- McDonald GW. Family power: The assessment of a decade of theory and research. *Journal of Marriage and the Family*. 1980; 42:841–854.
- Mikulincer, M.; Shaver, PR. *Attachment in adulthood: Structure, dynamics, and change*. New York: Guilford; 2007.
- Miller DT, Ratner RK. The disparity between actual and assumed power of self-interest. *Journal of Personality and Social Psychology*. 1998; 74(1):53–62. [PubMed: 9457775]
- Miller, JB. *Toward a new psychology of women*. 2. Boston: Beacon; 1986.
- Mitchell, SA. *Relational concepts on psychoanalysis: An integration*. Cambridge: Harvard; 1988.
- Montagu, A. *Touching: The human significance of the skin*. 3. New York: Harper and Row; 1986.
- Nisbet, R. *The quest for community: A study in the ethics of order and freedom*. San Francisco: Institute for Contemporary Studies; 1990.
- Nye, FI. The basic theory. In: Nye, FI., editor. *Family relationships: Rewards and costs*. Beverly Hills, CA: Sage; 1982. p. 13-31.
- Nygren, A. *Agape and Eros*. Watson, PS., translator. New York: Harper and Row; 1953.
- Oliner, SP.; Oliner, PM. *The altruistic personality: Rescuers of Jews in Nazi Europe*. New York: Free Press; 1988.
- Olson, DH.; Cromwell, RE. Power in families. In: Cromwell, RE.; Olson, DH., editors. *Power in families*. New York: Wiley; 1975. p. 3-11.
- Panksepp, J. *Affective neuroscience: The foundations of human and animal emotions*. New York: Oxford University Press; 1998.
- Panksepp, J.; Moskal, J. Dopamine and seeking: Subcortical “reward” systems and appetitive urges. In: Elliot, AJ., editor. *Handbook of approach and avoidance motivation*. New York: CRC Press; 2008. p. 67-87.

- Panksepp, J.; Smith-Pasqualini, M. The search for the fundamental brain/mind sources of affective experience. In: Nadel, J.; Darwin, M., editors. *Emotional development: Recent research advances*. New York: Oxford University Press; 2005. p. 5-27.
- Parsons, T. *The structure of social action*. Glencoe, IL: Free Press; 1937.
- Parsons, T. *The social system*. Glencoe, IL: Free Press; 1951.
- Parsons, T.; Bales, RF. *Family, socialization and interaction process*. Glencoe, IL: Free Press; 1955.
- Rapoport, R.; Rapoport, RN.; Strelitz, Z.; Kew, S. *Fathers, mothers and others: Towards new alliances*. London: Routledge and Kegan Paul; 1977.
- Rawls, J. *A theory of justice*. Cambridge, MA: Belknap Press; 1971.
- Regan, PC.; Berscheid, E. *Lust: What we know about human sexual desire*. Thousand Oaks, CA: Sage; 1999.
- Rescher, N. *Unselfishness: The role of the vicarious affects in moral philosophy and social theory*. Pittsburgh, PA: University of Pittsburgh; 1975.
- Rich, A. *Of woman born: Motherhood as experience and institution*. New York: Norton; 1986. 10th anniversary ed
- Rousseau, J-J. *The social contract*. Cranston, M., translator. London: Penguin Books; 1968.
- Rousseau, J-J. *Discourse on inequality*. Philip, F., translator. Oxford: Oxford University Press; 1994.
- Ruddick, S. *Maternal thinking: Toward a politics of peace*. New York: Ballantine; 1989.
- Samuelson, PA.; Nordhaus, WD. *Economics*. 15. New York: McGraw-Hill; 1995.
- Sawyer, RK. *Social emergence: Societies as complex systems*. New York: Cambridge University Press; 2005.
- Scheff, TJ. *Microsociology: Discourse, emotion, and social structure*. Chicago: University of Chicago Press; 1990.
- Schwartz, B. *The battle for human nature*. New York: Norton; 1986.
- Schwartz, G.; Merten, D. *Love and commitment*. Beverly Hills: Sage; 1980.
- Sewards TV, Sewards MA. Fear and power-dominance drive motivation: Neural representations and pathways mediating sensory and mnemonic inputs, and outputs to premotor structures. *Neuroscience and Biobehavioral Reviews*. 2002; 26:553–579. [PubMed: 12367590]
- Shaver, PR.; Hazan, C.; Bradshaw, D. Love as attachment: The integration of three behavioral systems. In: Sternberg, RJ.; Barnes, ML., editors. *The psychology of love*. New Haven, CT: Yale University Press; 1988. p. 68-99.
- Singer, I. *The nature of love*. Vol. 1, Plato to Luther. 2. Chicago: University of Chicago Press; 1966/1984.
- Singer, I. *The nature of love*. Vol. 2, Courtly and romantic. Chicago: University of Chicago Press; 1984.
- Singer, I. *The nature of love*. Vol. 3, The modern world. Chicago: University of Chicago Press; 1987.
- Sober, E.; Wilson, DS. *Unto others: The evolution and psychology of unselfish behavior*. Cambridge, MA: Harvard University Press; 1998.
- Solomon J, George C. Defining the caregiving system: Toward a theory of caregiving. *Infant Mental Health Journal*. 1996; 17:183–197.
- Sprey, J. Family power and process: Toward a conceptual integration. In: Cromwell, RE.; Olson, DH., editors. *Power in families*. New York: Wiley; 1975. p. 61-79.
- Straus MA, Gelles RJ. Societal change and change in family violence from 1975 to 1985 as revealed by two national surveys. *Journal of Marriage and the Family*. 1986; 48:465–479.
- Thomas, L. *Living morally: A psychology of moral character*. Philadelphia: Temple University Press; 1989.
- Toennies, F. *Gemeinschaft and gesellschaft*. In: Loomis, CP., translator; Parsons, T.; Shils, E.; Naegle, KD.; Pitts, JR., editors. *Theories of society: Foundations of modern sociological theory*. New York: Free Press; 1961. p. 191-201.
- Uvnäs Moberg, K. *The oxytocin factor: Tapping the hormone of calm, love, and healing*. Francis, RW., translator. Cambridge, MA: Da Capo Press; 2003.

- Weber, M. From Max Weber: Essays in sociology. Gerth, HH.; Mills, CW., translators. New York: Oxford University Press; 1946.
- Weber, M. The theory of social and economic organization. Henderson, AM.; Parsons, T., translators. New York: Free Press; 1947.
- Wrong, DH. The problem of order: What unites and divides society. Cambridge, MA: Harvard University Press; 1994.

Table 1

Summary of Emergent Theories

	Motivations from theoretical toolbox ^a	Characteristics of Emergent Society ^b			
		Economy	Government	Family	
Theory 1	Self-interest , lust	• Direct exchange	• None	• None	
Theory 2	Self-interest , lust, fear , anger	• Exchange	• Absolute	• Nonexistent	
		• Power	• Corrupt	• Ineffectively coerced by government	
Theory 3	Self-interest , lust, fear , anger, caregiving , attachment, play	• Exchange	• Power	• Caregiving	
		• Power	• Regulation		
		• Philanthropy			

Note: The economy provides for the distribution of goods and services that make a society sustainable. Government ensures peace through regulation, such as enforcement of contracts. Family enables society to be self-reproducing through the nurturance and socialization of new members.

^aToolbox motivations used to construct each model. Motivations that are most important in the model are shown in bold.

^bSocietal institutions affected by toolbox motivations.